

**PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
 (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PC4926FIP</b>	FOR FURTHER ACTION	
		See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/012301</b>	International filing date ( <i>day/month/year</i> ) <b>26.08.2004</b>	Priority date ( <i>day/month/year</i> ) <b>30.09.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>G01J3/28</b>		
Applicant <b>FUJITSU FIP CORPORATION</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>6</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																									
<p>4. This report contains indications relating to the following items:</p> <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>		<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012301

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- international search (Rule 12.3 and 23.1(b))
  - publication of the international application (Rule 12.4)
  - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- the international application as originally filed/furnished
- the description:  
pages 1-12 as originally filed/furnished  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- the claims:  
nos. \_\_\_\_\_ as originally filed/furnished  
nos.\* 1-15 as amended (together with any statement) under Article 19  
nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- the drawings:  
sheets fig. 1-2 as originally filed/furnished  
sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3.  The amendments have resulted in the cancellation of:
- the description, pages \_\_\_\_\_
  - the claims, nos. \_\_\_\_\_
  - the drawings, sheets/figs \_\_\_\_\_
  - the sequence listing (*specify*): \_\_\_\_\_
  - any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- the description, pages \_\_\_\_\_
  - the claims, nos. \_\_\_\_\_
  - the drawings, sheets/figs \_\_\_\_\_
  - the sequence listing (*specify*): \_\_\_\_\_
  - any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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## 1. Statement

Novelty (N)	Claims <u>1-15</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims <u>1-15</u>	YES
	Claims _____	NO
Industrial applicability (IA)	Claims <u>1-15</u>	YES
	Claims _____	NO

## 2. Citations and explanations (Rule 70.7)

## (1) Novelty and Inventive Step

The inventions set forth in claims 1 to 15 are not disclosed in any of the documents that are cited in the international search report; therefore, the inventions in question are novel.

In particular, the documents in question do not disclose the feature wherein a forked function is divided into a first range, which is in the vicinity of the peak, and a fringe section, which does not include said first range; said first range is substituted with a cubic function; and said fringe section is treated as a forked function, which is then calculated in prescribed ranges that have equal intervals, whereafter the area in the vicinity of the peak within the first range is replaced with a cubic function and the fringe section of the first range is treated as a function of the difference between the forked function and the cubic function, which is then calculated using second prescribed intervals that are narrower than the aforementioned first prescribed intervals.

Furthermore, the inventions set forth in claims 1 to 15 involve an inventive step in relation to the documents that are cited in the international search

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**Box No. V**      **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

report. In particular, the inventions that are set forth in the present application exhibit an advantageous effect in that it is possible to accelerate line-by-line calculations as a result of employing the abovementioned feature.

**(2) Industrial Applicability**

The inventions set forth in claims 1 to 15 exhibit industrial applicability in that said inventions can be used to accelerate the line-by-line calculations for spectrums that comprise a plurality of absorption lines.

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**Box No. VII      Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

The Japanese language disclosure "K(x, y) f(x) ga de aru," as set forth in claim 10, is grammatically incorrect.

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**Box No. VIII      Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**1. Claims 3 and 15**

Claims 3 and 15 do not clearly indicate the manner in which the results that are calculated in stage (6) will be reflected in the subsequent iterations of stages (4) to (6); therefore, from a technical standpoint it is unclear how simply repeating stages "(4) to (7)" will make it possible to "determine a third prescribed interval."

**2. Claims 5 and 6**

Claims 5 and 6 include the expression "approximately  $\gamma / 4$ ," which only vaguely defines the scope of the inventions that are set forth therein.

**3. Claims 9 to 11**

Forked functions comprise only one complex variable as an argument, and thus the meaning of the disclosure "variable  $y$ " is unclear (that is to say, the fact that  $y$  represents the imaginary section of the aforementioned complex variable is only set forth in claim 12).